



Director of National Intelligence

Open Source Center

# Open Source Collection & Analysis on Supply Chain Vulnerabilities

UNIQUE INSIGHTS

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OSC/Emerging Media Group**

INFORMED DECISIONS

*CUSTOM RESEARCH PROJECTS*

Sept. 12, 2009

INFORMATION TO INTELLIGENCE





- Supply Chain is backbone to global business
- Globalization has accelerated production times, outsourcing and subcontracting
- Economic optimization has a concentrated geographic risk, which makes supply chains more vulnerable.
- Only 21 % of business have continuity plans for their supply chains.<sup>1</sup>

1. Celina Realuyo – Safeguarding Supply Chains from Geopolitical Risks, May 16, 2008; SARMA conference; <http://russwbeck.wordpress.com>

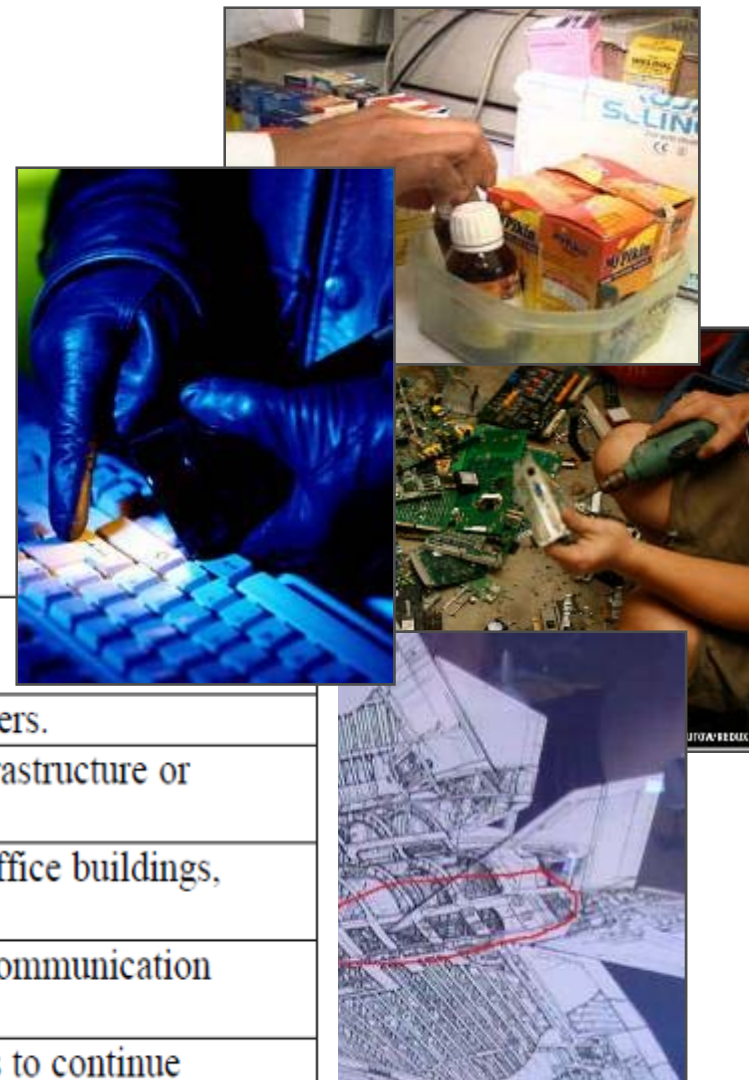
- Defense and intelligence acquisition programs
- Critical infrastructures (banking, food, pharmaceuticals, energy, transportation, etc.)



- Choke off of vital logistical and materials and components
- Sabotage of critical components
- Insertion of defective parts and components
- Tainted medicine or foodstuff
- Theft or illicit transfer of technology through supply chain loss
- Cyber attack on supply chain management and information systems
- Acquisition of US vendor by foreign entity

*Table . Basic Supply Network Failure Modes*

Failure Mode: A Disruption in ...	Description
...Supply	Delay or unavailability of materials from suppliers.
...Transportation	Delay or unavailability of the transportation infrastructure or various modes.
... Facilities	Delay or unavailability of plants, warehouses, office buildings, facilities used in converting products.
...Communications	Delay or unavailability of the information and communication infrastructure.
...Human Resources	Delay, loss or unavailability of human resources to continue operations.



TO INTELLIGENCE



# Historical Examples of Supply Chain Vulnerabilities

- 2001 – Due to closure of airspace following 9/11 Ford had to shut down five plants because couldn't get parts from Canada
- 2007 - Killer counterfeit cough syrup in Panama, 365 deaths attributed to tainted syrup traced to China purchased in Panamanian pharmacies.

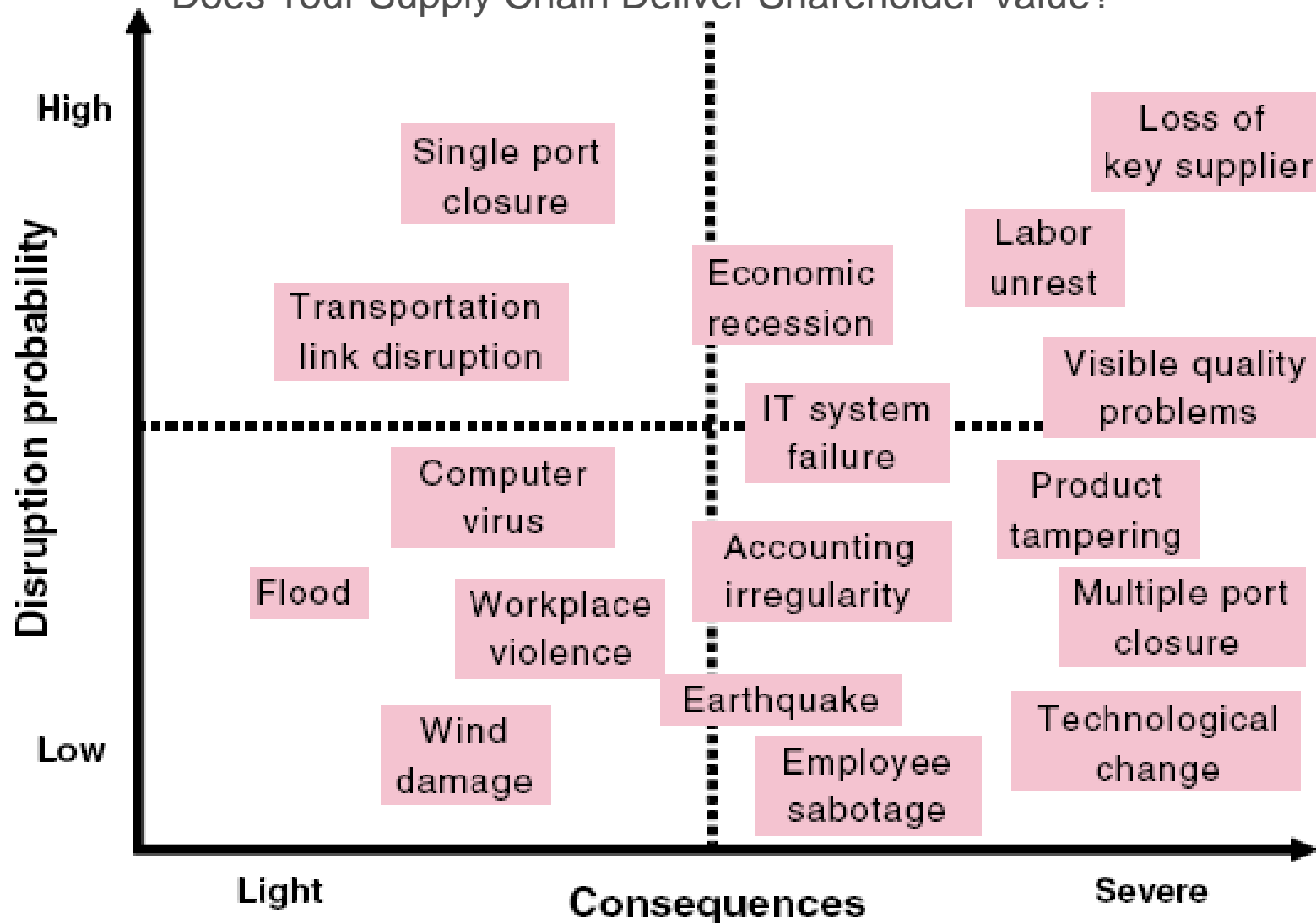
TABLE 5-2 Recent Supply Disruptions

Year	Material	Major Source	Problem	Effect
1978	Cobalt	Congo	Rebels invaded copper-cobalt mining region in Congo.	Rapid rise in price.
1993-1994	Antimony	China	Flooding was alleged reason though some industry sources believe Chinese suppliers withheld material to increase price.	Price per pound rose from \$0.80 to \$2.28 in 1995 and from \$1.61 in 2005 to \$2.25 in 2006.
1994	Titanium (rutile) Key in producing titanium metal.	Sierra Leone has one of the largest deposits of rutile.	Production suspended when rebels invaded mining sites.	Global shortage.
2001	Tantalite. Used for capacitors.		Closure of facility in Australia for long-term maintenance.	Shortage, price rise, and smuggling from central Africa.
2005	Tungsten	China dominates supply and restricts amount produced and exported.	Exports reduced due to alleged inadequate supplies within China, the largest consumer.	Steep price increase.
2005-2006	Rhenium. 65 percent goes to aerospace (jet engine blades and rocket nozzles).	75 percent from two companies—Molybmet in Chile (50 percent) and Redmet in Kazakhstan (25 percent).	Redmet exports blocked due to dispute over debt with copper company that supplies Redmet.	Price rose from \$1,000/kg to \$6,000/kg. Known future production increases are already sold.

SOURCE: USGS Minerals Management Service.



Does Your Supply Chain Deliver Shareholder Value?







## Resiliency

- Ability to be highly adaptive for cost effectiveness and for achieving sense and respond capabilities with acquisition supply chain requires very dynamic information and supply chain intelligence.

### CATCH-22

- Same mechanisms and methodologies used for enhancing supply chain efficiencies and management also expose vulnerabilities and can be exploited.



## [Key Takeaways]

- » That stretching supply chains globally increases the risk of a disruption is no revelation to supply chain professionals. Less obvious, however, is that being prone to operational breakdowns makes the enterprise a riskier investment.
- » Research is needed to shed more light on the impact of supply chain resilience on shareholder value. Meanwhile, supply chain professionals can help build credibility with investors and increase the market value of the enterprise.

supply chain strategy

[www.MITsupplychainstrategy.com](http://www.MITsupplychainstrategy.com)

***How can open source collection make the supply chain more resilient?***



**Business intelligence (BI):** refers to skills, technologies, applications and practices used to help a business acquire a better understanding of its commercial context. Business intelligence may also refer to the collected information itself. BI technologies provide historical, current, and predictive views of business operations. Common functions of business intelligence technologies are reporting, OLAP, analytics, data mining, business performance management, benchmarking, text mining, and predictive analytics. Business intelligence often aims to support better business decision-making.[1] Thus a BI system can be called a decision support system (DSS).[2]

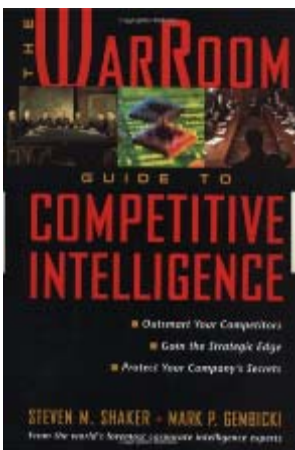
**Supply Chain Intelligence Definition:** Decision support environment that results from applying business intelligence (BI) tools and techniques to supply chain business problems.

**Competitive Intelligence (CI):** refers to a systematic, ongoing business process to ethically and legally gather intelligence on targets such as customers, competitors, adversaries, personnel, technologies, and the total business environment. It can be provided by any and all sources, and is disseminated to decision-makers at all levels in a visually effective, timely, and secure manner.

## Competitive Intelligence: The New Supply Chain Edge

**What are the strengths and weaknesses of your supply chain? What are the strengths and weaknesses of your competitors' supply chains? If you know the answers to these questions, you've got supply chain competitive intelligence. And with that information you can take the actions necessary to outperform the competition while improving revenue, profitability, and return on investment.**

*By Richard L. Wilkins -- Supply Chain Management Review, 1/1/2007*







SAS® Supply Chain Intelligence



HighJump Software Introduces Business Intelligence Dashboard for Sophisticated Supply Chain Performance Management



Microsoft Dynamics AX - Supply Chain Management



Oracle Supply Chain and Order Management Analytics

Tools which mine from the corporate intranets and external sources enabling one to track, monitor and visualize the supply chain.



Software and Automation  
for Supply Chain Logistics



EPCIS-based Supply Chain  
Visualization Tool






 **PowerAdvocate**

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Deliver insight & visibility across the supply chain

**RESEARCHANDMARKETS**

Brochure  
More information from <http://www.researchandmarkets.com/reports/655055/>

**The Aviation Supply Chain Intelligence**

Description: A comprehensive contract-by-contract guide to the global aviation supply chain, updated every month.

**THE Manufacturer**

News Community Blogs Digital Edition Audio & Visual Articles Case Study

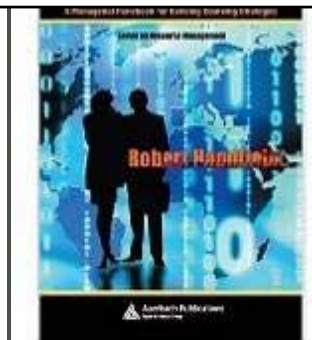
**Logistics and supply chain**

The new supply chain edge: Competitive intelligence

**Primary Sources:** Providers who obtain their intelligence directly From their target. They learn their information from first hand interaction and observation. Directly from those in the know. Business methodology akin to HUMINT but with different tradecraft

- Different industry primary and secondary intelligence sources
- Online portals, publications and newsletters in energy, transport, trade, manufacturing and aviation supply chains intelligence

**Secondary Sources:** Providers of secondhand intelligence, who learned the information through someone other than the target. Can be derived from Literature, the Internet, databases. Business methodology akin to OPEN SOURCE collection.

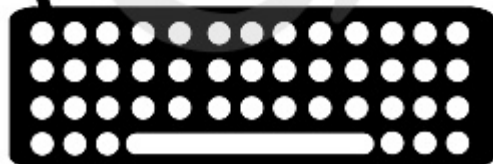




**Business  
Intelligence**

**Competitive  
Intelligence**

Supply  
Chain



Via Open Source collection  
Information on the supply chain  
intelligence derived from  
business and competitive  
intelligence can be used by  
adversaries to detect and exploit  
weaknesses, or by public private  
partnerships to protect the supply  
chain and to mitigate threats



- Brand Protection
- Logo Violations
- Intellectual Property Protection
- Patent Infringement
- Media Monitoring



CORPORATION SERVICE COMPANY\*



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CISION

## Supply Chain Industry Solutions Overview

When bananas are imported from Brazil into the U.S., their limited shelf life is a liability. Agent Logic turns this risk into opportunity. RFID tags mounted on shipping containers automatically populate databases when containers pass through shipping locations. Agent Logic provides monitoring and correlation across these databases and other supply chain sources in order to identify when shipments have passed customs, and where at that point in time product need is highest. This dynamic supply chain intelligence dramatically improves customer satisfaction and vendor loyalty while also maximizing profits by directing delivery to the highest yielding locations.







Web 1.0 saw the rise of information providing web sites with news, entertainment, and the means to purchase items and e-commerce through web sites.

Web 2.0 enabled the individual for self expression and organization within communities via social networking sites.

Web 3.0 will allow the portability and aggregation of information across social networking and other web sites. Information will be much easier to collect and convey.



Effective open source collection on supply chains requires use of emerging media

INFORMATION TO INTELLIGENCE





- Business social networking sites are a major focus for competitive intelligence.
- Includes interactive dialogue with experts and main participants in the topics of interests.
- There are about a twenty major business SNS, many are geographical or business industry focused.
- Many have special identity groups related to supply chains, and some have specific government, aerospace and defense related supply chain groups.





1,021 groups



47 groups



500 + groups

Social Networking Sites, particularly those which are business focused have numerous groups and discussion areas which focus on supply chain intelligence, including defense and aviation areas.

This provides an important area to keep current with supply chain dynamics.

## SEA Aerospace & Defense Supply Chain



The purpose of this site is to encourage industry-wide collaboration among small and mid-size suppliers. Small suppliers of less than 1,000 employees may join, seek and give advice, share experiences, exchange best practices.

[Join Group](#)

[Share](#) [Flag as...](#)

### About this Group

**Created:** March 31, 2009

**Type:** Corporate Group

**Members:** 645

**Owner:** [Michael Beason](#)

**Managers:** [Hilda Pacheco-Taylor](#), [Jeff Hawley](#) and [David Blanco](#)

**Website:** <http://www.seaonline.org>



## Interagency Logistics



The genesis of this group was the Community of Interest created at the 2008 Interagency Logistics Symposium, sponsored by the US Transportation Command (USTRANSCOM) Joint Interagency Coordination Group (JIACG). This Symposium brought together senior leaders and practitioners from across the entire spectrum of U.S. federal agencies, the military, academia, NGOs/IGOs, multinational partners and the private sector. Facilitated panel discussions addressed "Reducing the Hydrocarbon Footprint in the Supply Chain" and "Knowledge Management as a Logistics Enabler." This group will serve as a venue to facilitate continued dialogue and connect the diverse membership of our growing Community of Interest. It will also serve as a means to inform the membership of future Symposia, Conferences and events of interest.

[Join Group](#)

[Share](#) [Flag as...](#)

### About this Group

**Created:** January 26, 2009

**Type:** Professional Group

**Members:** 54

**Owner:** [Lance Carpenter](#)

## Search Results (8)



### ArabianSupplyChain.com - Professional Network

[Join this group »](#)

Connect with fellow professionals in the air cargo, sea freight, logistics and supply chain industries in the Middle East and beyond.

Owner: [Nick Davis](#) | 470 members | [Share](#)



### Middle East Supply Chain & Logistics Group

[Join this group »](#)

To provide a network of information and contacts for logistics and supply chain professionals in the Middle East Region

Owner: [Julian Kimber](#) | 128 members | [Share](#)



### The Supply Chain & Logistics Group

[Join this group »](#)

The Supply Chain & Logistics Group (SCLG) of Middle East is a non-profit organisation established to promote the cause of supply chain & logistics. This group brings an opportunity of education, training, seminar and networking among like minded professionals and corporations on global basis.

Owner: [Naveen Arun](#) | 123 members | [Share](#)



### MIDDLE EAST & AFRICA SUBGROUP

[Join this group »](#)

a subgroup of Buyers-World ☐EUROPE - NORTH AMERICA - SOUTH AMERICA - MIDDLE EAST & AFRICA - ASIA & PACIFIC RIM☐

Exclusively for procurement and supply chain professionals from the Middle East & Africa. Cyprus-Egypt-Iraq-Israel-Kuwait-Oman-Qatar-Saudi Arabia-Turkey-United Arab Emirates-Yemen-Algeria-Botswana-Burundi-Cameroon-Gambia-Ghana-Morocco-Mozambique-Nigeria-South Africa-Tunisia-Zambia-Zimbabwe etc.

Owner: [Maurice A.C. van den Berk - Procurement Professional](#) | 42 members | [Share](#)



### Eban Procurement & Contracts Managers

[Join this group »](#)

Procurement & Contracts Managers Group is a professional group for Supply Chain Professionals in the area of Purchasing, Contracts Management and Inventory Management. Dedicated to provide help and advise in the area of Supply chain Management for all professionals in the Middle East.

Owner: [Ahmad Alrjoub](#) | 19 members | [Share](#)



### Supply Chain Group-Middle East

[Join this group »](#)

The purpose of this group of networkers is to create of community of people with strong Supply Chain Management Profile. If you have implemented, managed the operations of the supply chain on projects, using various softwares, ERPs and want to exchange information...you've selected the right group!

Owner: [Mario Ghosn](#) | 18 members | [Share](#)



### APICS-Middle East

[Join this group »](#)

This group is intended to network those interested in supply chain management, logistics and Operations management in the Middle East.

Owner: [Sameh Shihabi](#) | 17 members | [Share](#)



### Middle East Supply Chain Council Chapter Development

[Join this group »](#)

This temporary group will discuss benefits and actions necessary to create a Supply Chain Council (SCC) Chapter for the Middle East region, including Egypt, Jordan, Dubai, Kuwait, and Saudi Arabia - possible other countries will be added.

Owner: [Melinda Spring](#) | 8 members | [Share](#)

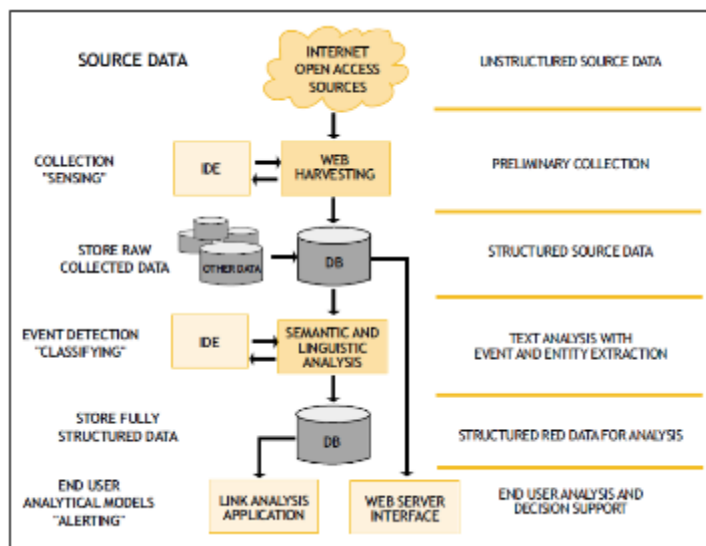


- **Identify the critical subsystems, components and technology that are vital to acquisition or critical infrastructure supply chain**
- **Develop the analytical process for determining what we need to know (the indicators)**
  - What are the indicators related to:
    - Illicit transfer of technology, loss of data
    - Insertion of defective parts
    - Foreign acquisition of US vendor
  - Develop list of key indicators.
- **Find or develop a systematic mechanism for finding that data associated with those indicators**
  - Systems and processes to monitor and track supply chain developments including threats and evidence of illicit transfer.
  - Adapt and incorporate business intelligence and competitive intelligence methodologies and tools to monitor supply chain developments.





## Concept: Supply Chain Vulnerabilities War Room



- Source Identification and Collection
  - Collect unstructured data from myriad sources
- Text Analysis
  - finds text data and puts them into structured records
- Analytical Tools Application
  - creating meaningful intelligence and knowledge discovery
  - link analysis, multidimensional visualization